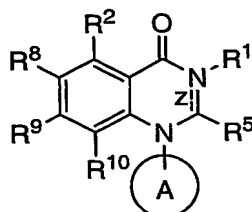


WHAT IS CLAIMED IS:

1. A compound of the structure:



- 5 or a pharmaceutically acceptable salt thereof, wherein
z is a single or double bond;

A is

- a) an aryl ring, wherein any stable aryl ring atom is independently unsubstituted or substituted with

- 10 1) halogen,
2) NO₂,
3) CN,
4) CR⁴⁶=C(R⁴⁷R⁴⁸)₂,
5) C≡C R⁴⁶,
15 6) (CRⁱR^j)_rOR⁴⁶,
7) (CRⁱR^j)_rN(R⁴⁶R⁴⁷),
8) (CRⁱR^j)_rC(O)R⁴⁶,
9) (CRⁱR^j)_rC(O)OR⁴⁶,
10) (CRⁱR^j)_rR⁴⁶,
20 11) (CRⁱR^j)_rS(O)₀₋₂R⁶¹,
12) (CRⁱR^j)_rS(O)₀₋₂N(R⁴⁶R⁴⁷),
13) OS(O)₀₋₂R⁶¹,
14) N(R⁴⁶)C(O)R⁴⁷,
15) N(R⁴⁶)S(O)₀₋₂R⁶¹,
25 16) (CRⁱR^j)_rN(R⁴⁶)R⁶¹,
17) (CRⁱR^j)_rN(R⁴⁶)R⁶¹OR⁴⁷,
18) (CRⁱR^j)_rN(R⁴⁶)(CR^kR^l)_sC(O)N(R⁴⁷R⁴⁸),
19) N(R⁴⁶)(CRⁱR^j)_rR⁶¹,
20) N(R⁴⁶)(CRⁱR^j)_rN(R⁴⁷R⁴⁸),
30 21) (CRⁱR^j)_rC(O)N(R⁴⁷R⁴⁸), or

22) oxo, or

b) a heteroaryl ring selected from the group consisting of

a 5-membered unsaturated monocyclic ring with 1, 2, 3 or 4 heteroatom ring atoms selected from the group consisting of N, O or S,

a 6-membered unsaturated monocyclic ring with 1, 2, 3 or 4 heteroatom ring atoms selected from the group consisting of N, O and S, and

a 9- or 10-membered unsaturated bicyclic ring with 1, 2, 3 or 4 heteroatom ring atoms selected from the group consisting of N, O or S;

wherein any stable S heteroaryl ring atom is unsubstituted or mono- or di-substituted with oxo, and any stable C or N heteroaryl ring atom is independently unsubstituted or substituted with

1) halogen,

2) NO₂,

3) CN,

4) CR⁴⁶=C(R⁴⁷R⁴⁸)₂,

5) C≡CR⁴⁶,

6) (CRⁱR^j)_rOR⁴⁶,

7) (CRⁱR^j)_rN(R⁴⁶R⁴⁷),

8) (CRⁱR^j)_rC(O)R⁴⁶,

9) (CRⁱR^j)_rC(O)OR⁴⁶,

10) (CRⁱR^j)_rR⁴⁶,

11) (CRⁱR^j)_rS(O)₀₋₂R⁶¹,

12) (CRⁱR^j)_rS(O)₀₋₂N(R⁴⁶R⁴⁷),

13) OS(O)₀₋₂R⁶¹,

14) N(R⁴⁶)C(O)R⁴⁷,

15) N(R⁴⁶)S(O)₀₋₂R⁶¹,

16) (CRⁱR^j)_rN(R⁴⁶)R⁶¹,

17) (CRⁱR^j)_rN(R⁴⁶)R⁶¹OR⁴⁷,

18) (CRⁱR^j)_rN(R⁴⁶)(CR^kR^l)_sC(O)N(R⁴⁷R⁴⁸),

19) N(R⁴⁶)(CRⁱR^j)_rR⁶¹,

20) N(R⁴⁶)(CRⁱR^j)_rN(R⁴⁷R⁴⁸),

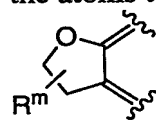
21) (CRⁱR^j)_rC(O)N(R⁴⁷R⁴⁸), or

22) oxo;

R², R⁸, R⁹ and R¹⁰ are independently selected from:

- 1) hydrogen,
- 2) halogen,
- 3) NO₂,
- 4) CN,
- 5) CR⁴³=C(R⁴⁴R⁴⁵),
- 6) C≡CR⁴³,
- 7) (CR^{eRf})_pOR⁴³,
- 8) (CR^{eRf})_pN(R⁴³R⁴⁴),
- 9) (CR^{eRf})_pC(O)R⁴³,
- 10) (CR^{eRf})_pC(O)OR⁴³,
- 11) (CR^{eRf})_pR⁴³,
- 12) (CR^{eRf})_pS(O)₀₋₂R⁶⁰,
- 13) (CR^{eRf})_pS(O)₀₋₂N(R⁴³R⁴⁴),
- 14) OS(O)₀₋₂R⁶⁰,
- 15) N(R⁴³)C(O)R⁴⁴,
- 16) N(R⁴³)S(O)₀₋₂R⁶⁰,
- 17) (CR^{eRf})_pN(R⁴³)R⁶⁰,
- 18) (CR^{eRf})_pN(R⁴³)R⁶⁰OR⁴⁴,
- 19) (CR^{eRf})_pN(R⁴³)(CR^{gRh})_qC(O)N(R⁴⁴R⁴⁵),
- 20) N(R⁴³)(CR^{eRf})_pR⁶⁰,
- 21) N(R⁴³)(CR^{eRf})_pN(R⁴⁴R⁴⁵), and
- 22) (CR^{eRf})_pC(O)N(R⁴³R⁴⁴),

or R² and R⁸ are independently as defined above, and R⁹ and R¹⁰, together with the atoms to which they are attached, form the ring



, where R^m is C₁₋₆alkyl;

R¹ is selected from the group consisting of

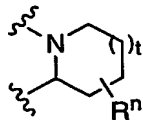
- 1) hydrogen,
- 2) (CR^{aRb})_nR⁴⁰
- 3) (CR^{aRb})_nOR⁴⁰,
- 4) (CR^{aRb})_nN(R⁴⁰R⁴¹),
- 5) (CR^{aRb})_nN(R⁴⁰)C(O)OR⁴¹,
- 6) (CR^{aRb})_nN(R⁴⁰)(CR^{cRd})₂N(R⁴¹)C(O)R⁴⁹,
- 7) C₃₋₈ cycloalkyl,

- 8) $(\text{CR}^{\text{a}}\text{R}^{\text{b}})_n\text{C}(\text{O})\text{OR}^{40}$,
 9) $(\text{CR}^{\text{a}}\text{R}^{\text{b}})_n\text{N}(\text{R}^{40})(\text{CR}^{\text{c}}\text{R}^{\text{d}})_{1-3}\text{R}^{41}$,
 10) $(\text{CR}^{\text{a}}\text{R}^{\text{b}})_n\text{S}(\text{O})_{0-2}\text{R}^6$,
 11) $(\text{CR}^{\text{a}}\text{R}^{\text{b}})_n\text{S}(\text{O})_{0-2}\text{N}(\text{R}^{40}\text{R}^{41})$,
 12) $(\text{CR}^{\text{a}}\text{R}^{\text{b}})_n\text{N}(\text{R}^{40})\text{R}^6\text{OR}^{41}$,
 13) $(\text{CR}^{\text{a}}\text{R}^{\text{b}})_n\text{N}(\text{R}^{40})(\text{CR}^{\text{c}}\text{R}^{\text{d}})_{0-6}\text{C}(\text{O})\text{N}(\text{R}^{41}\text{R}^{42})$;
 or R^1 is absent when z is a double bond

R^5 is selected from the group consisting of

- 1) C₁₋₆ alkyl,
 2) =O
 3) aryl
 4) C₃₋₁₀ cycloalkyl
 5) C₁₋₆alkylene-C(O) R^{11} ,
 6) C₁₋₆alkylene-C(O) R^{13}
 7) C(O) R^{11} ,
 8) C(O) R^{13} ,
 9) C(O)OR¹¹,
 10) C(O)OR¹³,
 11) C(O)N($\text{R}^{11}\text{R}^{11}$),
 12) C(O)N($\text{R}^{13}\text{R}^{13}$),
 13) C(O)N($\text{R}^{11}\text{R}^{13}$),
 14) CN,
 15) NHC(O) R^{11} ,
 16) NHC(O)CF₃, and
 17) NHC(O)C₂₋₆alkyl,

or R^1 and R^5 , together with atoms to which they are attached, form



where t is 0, 1, 2, or 3, and R^n is selected from the group consisting of hydrogen, -ORP, NRPR^q, C(O)NRPR^q, or C(O)ORP, wherein RP and R^q are independently selected from the group consisting of C₁₋₆ alkyl and aryl;

R^{11} is selected from the group consisting of

- 1) aryl, and

2) an unsubstituted or substituted heterocyclic ring consisting of a 4-6 membered unsaturated or saturated monocyclic ring with 1, 2, 3 or 4 heteroatom ring atoms selected from the group consisting N, O and S, and a 9- or 10-membered unsaturated or saturated bicyclic ring with 1, 2, 3 or 4 heteroatom ring atoms selected from the group consisting or N, O or S; and

R¹³ is selected from the group consisting of

- 1) C₁₋₆alkyl,
- 2) C₁₋₆alkyloxy,
- 3) C₁₋₆alkenyl,
- 4) C₁₋₆alkynyl, and
- 5) CF₃;

R^a, R^b, R^c, R^d, R^e, R^f, R^g, R^h, Rⁱ, R^j, R^k, and R^l are independently selected from the group consisting of:

- 1) hydrogen,
- 2) C_{1-C6} alkyl,
- 3) halogen,
- 4) aryl,
- 5) R⁸⁰,
- 6) C_{3-C10} cycloalkyl, and
- 7) OR⁴,

said alkyl, aryl, and cycloalkyl being unsubstituted, monosubstituted with R⁷, disubstituted with R⁷ and R¹⁵, trisubstituted with R⁷, R¹⁵ and R¹⁶, or tetrasubstituted with R⁷, R¹⁵, R¹⁶ and R¹⁷;

R⁴, R⁴⁰, R⁴¹, R⁴², R⁴³, R⁴⁴, R⁴⁵, R⁴⁶, R⁴⁷, R⁴⁸, R⁴⁹, R⁵¹, and R⁵² are independently selected from:

- 1) hydrogen,
- 2) C_{1-C6} alkyl,
- 3) C_{3-C10} cycloalkyl,
- 4) aryl,
- 5) R⁸¹,
- 6) CF₃,
- 7) C_{2-C6} alkenyl, and
- 8) C_{2-C6} alkynyl,

said alkyl, aryl, and cycloalkyl is unsubstituted, mono-substituted with R¹⁸, di-substituted with R¹⁸ and R¹⁹, tri-substituted with R¹⁸, R¹⁹ and R²⁰, or tetra-substituted with R¹⁸, R¹⁹, R²⁰ and R²¹;

R⁶, R⁶⁰, R⁶¹, and R⁶³ are independently selected from:

- 1) C₁-C₆ alkyl,
- 2) aryl,
- 3) R⁸³, and
- 4) C₃-C₁₀ cycloalkyl;

said alkyl, aryl, and cycloalkyl is unsubstituted, mono-substituted with R²⁶, di-substituted with R²⁶ and R²⁷, tri-substituted with R²⁶, R²⁷ and R²⁸, or tetra-substituted with R²⁶, R²⁷, R²⁸ and R²⁹;

R⁷, R¹⁵, R¹⁶, R¹⁷, R¹⁸, R¹⁹, R²⁰, R²¹, R²⁶, R²⁷, R²⁸, and R²⁹ are independently selected from:

- 1) C₁-C₆ alkyl,
- 2) halogen,
- 3) OR⁵¹,
- 4) CF₃,
- 5) aryl,
- 6) C₃-C₁₀ cycloalkyl,
- 7) R⁸⁴,
- 8) S(O)₀₋₂N(R⁵¹R⁵²),
- 9) C(O)OR⁵¹,
- 10) C(O)R⁵¹,
- 11) CN,
- 12) C(O)N(R⁵¹R⁵²),
- 13) N(R⁵¹)C(O)R⁵²,
- 14) S(O)₀₋₂R⁶³,
- 15) NO₂, and
- 16) N(R⁵¹R⁵²);

R⁸⁰, R⁸¹, R⁸³ and R⁸⁴ are independently selected from a group of unsubstituted or substituted heterocyclic rings consisting of a 4-6 membered unsaturated or saturated monocyclic ring with 1, 2, 3 or 4 heteroatom ring atoms selected from the group consisting N, O and S, and a 9- or 10-membered unsaturated or saturated bicyclic ring with 1, 2, 3 or 4 heteroatom ring atoms selected from the group consisting or N, O or S; and

n, p, q, r, and s are independently 0, 1, 2, 3, 4, 5 or 6,
provided that, when R⁹ is hydrogen, A is substituted as defined above.

2. A compound of Claim 1, or a pharmaceutically acceptable salt thereof,

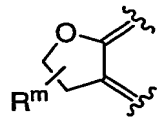
5 wherein

A is an aryl ring selected from phenyl, unsubstituted or substituted as in Claim 1, or a heteroaryl ring, unsubstituted or substituted as in Claim 1, selected from the group consisting of pyridine, pyrimidine, pyrazine, pyridazine, indole, pyrrolopyridine, benzimidazole, benzoxazole, benzothiazole, and benzoxadiazole;

10 R², R⁸, R⁹ and R¹⁰ are independently selected from the group consisting of:

- 1) hydrogen,
- 2) halogen,
- 3) OR⁴³, and
- 4) (CR^eR^f)_pR⁴³,

15 or R² and R⁸ are independently as defined above, and R⁹ and R¹⁰, together with the atoms to which they are attached, form the ring

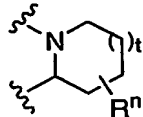


, where R^m is C₁₋₆alkyl; and

R¹ is selected from the group consisting of

- 1) hydrogen,
- 2) (CR^aR^b)₁₋₂R⁴⁰
- 3) (CR^aR^b)₁₋₂OR⁴⁰,
- 4) (CR^aR^b)₁₋₂N(R⁴⁰R⁴¹),
- 5) (CR^aR^b)₁₋₂N(R⁴⁰)C(O)OR⁴¹,
- 6) (CR^aR^b)₁₋₂N(R⁴⁰)(CR^cR^d)₂N(R⁴¹)C(O)R⁴⁹,
- 7) (CR^aR^b)₁₋₂C(O)OR⁴⁰,
- 8) (CR^aR^b)₁₋₂N(R⁴⁰)(CR^cR^d)₁₋₃R⁴¹, and
- 9) cyclopropyl,

or R¹ and R⁵, together with atoms to which they are attached, form

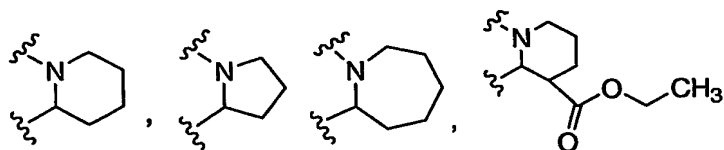


where t is 0, 1, 2, or 3, and R^n is selected from the group consisting of hydrogen, $-ORP$, $NRPR^q$, $C(O)NRPR^q$, or $C(O)ORP$, wherein RP and R^q are independently selected from the group consisting of C_{1-6} alkyl and aryl.

5 3. A compound of Claim 2, or a pharmaceutically acceptable salt thereof, wherein R^2 , R^8 , R^9 , and R^{10} are independently selected from the group consisting of hydrogen and $-OR^{43}$.

10 4. A compound of Claim 3, or a pharmaceutically acceptable salt thereof, wherein A is selected from the group consisting of A is phenyl, fluorophenyl and chlorophenyl.

 5. A compound of Claim 4, or a pharmaceutically acceptable salt thereof, wherein
 R^1 is selected from the group consisting of C_{1-6} alkyl and C_{3-10} cycloalkyl, or R^1 is absent
 15 when z is a double bond;
 R^5 is selected from the group consisting of C_{1-6} alkyl, $=O$, aryl, and C_{3-10} cycloalkyl;
 or R^1 and R^5 together with the atoms to which they are attached, form



20 6. A compound of Claim 5, or a pharmaceutically acceptable salt thereof, selected from the group consisting of
 25 5-(3-fluorophenyl)-3-methoxy-5,5a,6,7,8,9-hexahydro-11H-pyrido[2,1-b]quinazolin-11-one,
 (5,6-cis)-5-(3-fluorophenyl)-3-methoxy-11-oxo-5,6,7,8,9,11-hexahydro-5aH-pyrido-
 [2,1-b]quinazoline-6-carboxylate,
 30 ethyl (5,6-cis)-11-oxo-5-phenyl-5,6,7,8,9,11-hexahydro-5aH-pyrido[2,1-b]quinazoline-6-carboxylate,

7-methoxy-2,3-dimethyl-1-phenyl-2,3-dihydroquinazolin-4(1H)-one,
6-methoxy-4-phenyl-2,3,3a,4-tetrahydropyrrolo[2,1-b]quinazolin-9(1H)-one,
5 3-methoxy-5-phenyl-5,5a,6,7,8,9-hexahydro-11H-pyrido[2,1-b]quinazolin-11-one,
3-methoxy-5-phenyl-5a,6,7,8,9,10-hexahydroazepino[2,1-b]quinazolin-12(5H)-one,
7-methoxy-2-methyl-4-oxo-1-phenyl-1,4-dihydroquinazolin-1-ium chloride,
10 2-tert-butyl-7-methoxy-1-phenylquinazolin-4(1H)-one,
2-cyclohexyl-7-methoxy-1-phenylquinazolin-4(1H)-one, and
15 3-cyclopropyl-7-methoxy-1-phenylquinazoline-2,4(1H,3H)-dione.

7. A method of treating a condition in a mammal, the treatment of which is effected or facilitated by K_V1.5 inhibition, which comprises administering a compound of Claim 1 in an amount that is effective at inhibiting K_V1.5.

8. A method of Claim 7, wherein the condition is cardiac arrhythmia.

9. A method of Claim 8, wherein the cardiac arrhythmia is atrial fibrillation.

10. A method of Claim 8, wherein the cardiac arrhythmia is selected from the group consisting of atrial flutter, atrial arrhythmia and supraventricular tachycardia.

11. A method of preventing a condition in a mammal, the prevention of which is effected or facilitated by K_V1.5 inhibition, which comprises administering a compound of Claim 1 in an amount that is effective at inhibiting K_V1.5.

12. A method of Claim 11, wherein the condition is cardiac arrhythmia.

13. A method of Claim 12, wherein the cardiac arrhythmia is atrial fibrillation.

14. A method of Claim 12, wherein the cardiac arrhythmia is selected from the group consisting of atrial flutter, atrial arrhythmia and supraventricular tachycardia.

15. A method of Claim 11, wherein the condition is a thromboembolic event.
16. A method of Claim 15, wherein the thromboembolic event is a stroke.
- 5 17. A method of Claim 11, wherein the condition is congestive heart failure.
18. A pharmaceutical formulation comprising a pharmaceutically acceptable carrier and the compound of Claim 1 or a pharmaceutically acceptable crystal form or hydrate thereof.
- 10 19. A pharmaceutical composition made by combining the compound of Claim 1 and a pharmaceutically acceptable carrier.
20. A method of treating cardiac arrhythmia comprising administering a
15 compound of Claim 1 with a compound selected from one of the classes of compounds consisting of antiarrhythmic agents having Kv1.5 blocking activities, ACE inhibitors, angiotensin II antagonists, cardiac glycosides, L-type calcium channel blockers, T-type calcium channel blockers, selective and nonselective beta blockers, endothelin antagonists, thrombin inhibitors, aspirin, nonselective NSAIDs, warfarin, factor Xa inhibitors, low molecular weight
20 heparin, unfractionated heparin, clopidogrel, ticlopidine, IIb/IIIa receptor antagonists, 5HT receptor antagonists, integrin receptor antagonists, thromboxane receptor antagonists, TAFI inhibitors and P2T receptor antagonists.
21. A method for inducing a condition of normal sinus rhythm in a patient
25 having atrial fibrillation, which comprises treating the patient with a compound of Claim 1.
22. A method for treating tachycardia in a patient which comprises treating the patient with an antitachycardia device in combination with a compound of Claim 1.